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ABSTRACT

Research has specifically linked dropping out of school to reading disabilities and related problems. Research on reading as a cognitive task has focused on reading as an active proce[illegible]with three questions of concern: (1) How does the learner learn to identify the printed word?; (2) How does he or she discriminate one word from another word?; and (3) How does he or she recognize a word upon seeing it again in a different context? Other research indicates that poor readers may have been created by present reading programs. The disabled reader is probably a disabled reader because he or she is introduced to words at an ever-increasing rate, and he or she finds it harder and harder to make the fine discriminations required to identify the words. Jean Piaget's theory of schemata consists of a framework for tying together the information about any given concept or event. As he defines it, long-term memory has three dimensions: (1) episodic or personal memory and semantic memory; (2) conceptual data hierarchy; and (3) stratification construct, which includes the production, retrieving, and using of these hierarchies, the organizing framework of schemata. Reading theorists suggest that non- or poor-readers who are inconsistent and inflexible in reading need direct teaching of more skills, more thorough initial input, and more reteaching and review than normal readers. But a constant problem is how to get the slow reader to work on the same words or sound-symbol associations over and over, how to keep interest high while slowing down the pace long enough to achieve mastery of skills. More research is needed in the area of the two types of learners identified by Piaget, the global-analytic and the reflective-impulsive. (Forty-two references are attached.) (RS)

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ENTERING FRESHMEN HINDERED BY FUNCTIONAL ILLITERACY

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Abstract

Hal Beder of Rutgers University said, "The least educated are the least likely to enroll in ABE classes. After six months, an average of one-third have dropped out. An analysis of persistence in the program shows that completers have higher cognitive ability and achievement scores than drop-outs" (New York Times, p. 13E). Once recruited, how do we educate the least educated so that they continue to participate until their needs have been met? The purpose of this paper is to consider whether reading theories and learning theories conflict and, if this situation does indeed exist, whether this conflict negates efforts to accelerate the process of developing and building the extensive vocabulary and skills needed by the least educated ABE student to succeed in higher education.

The U.S. General Accounting Office reports that in 1985 there were 4.3 million 16-24 year old drop-outs (Williams, 1987). Research findings report that about one-third of all 18-24 year-old drop-outs left school prior to completing 10th grade. Prevention programs that start in the junior and senior year of high school are just too little, too late (Hahn, Danzberger, & Lefkowitz, 1987). More than 25% of potential graduates have left school without graduating and there has been no progress in reducing the overall drop-out rate since about 1965 (Statistical Abstracts of the U.S., 1981).

Less than ten years ago, school superintendents from large cities issued a guide intended to combat the problems that lead more than 3,700 teenagers to drop out of high school every day. This booklet, which outlines steps urban school officials can take to keep youth in school, was issued by thirty-two superintendents under the direction of the Department of Education. Steps suggested include: creating a positive school environment with strong committed leaders who believe that all students, including at-risk ones, are educable; setting high expectations for attendance, academic standards, and discipline; selecting and developing strong teachers; providing a broad range of instructional programs including magnet schools that offer choices for students and parents; initiating collaborative efforts with people, organizations, businesses and institutions outside the school; and

infusion of money at the state and federal level (New York Times, 1987, p. 35). Some researchers contend that expenditures are less significant affecting drop-out rates than how a school organized, and the quality of teaching, administration and innovation in the curricula (National Center for Educational Statistics, 1984).

Taken together, the call for higher standards in curriculum content, learning time, and achievement levels seem to be based on five assumptions: current standards are too low; more demanding content and more time allocated to school will lead to greater individual student effort; greater student effort will lead to improved achievement; the relationship between standards and effort and between effort and effort and achievement will hold for all students; no negative consequences will be associated with the more demanding standards. Suggestions have been made to provide extra help in the basic skills for students who have major deficiencies in these areas (United States Department of Justice, Office of Juvenile Delinquency, 1980). Frank Newman, President of Education Commission of the States said, "We are discovering that improving schools is a lot more complicated than we first thought. We have to figure out how to get students to go beyond rote learning and to be more creative. Students are failing to meet the higher academic standards. It is easy to raise standards. It is a lot tougher to figure out how to help these kids who can't meet them to make the grade" (Catterall, 1985).

However, for students who enter school with skills far behind their peers or who fall behind their peers after entering school, higher standards may impose a forbidding barrier rather than create a positive challenge. Without additional strategies, such students are at risk of failing to meet the standards before they have a chance to benefit fully from the opportunities afforded by public education.

The problems Of illiteracy. Reading disability permeates virtually every element of the deeply ingrained sense of personal failure of individual worthlessness. The literature research specifically links dropping out to reading disabilities and related

problems (Riley, 1986).

Matthew Stoll examined records of 91,000 students who were enrolled as 9th graders in Chicago public high schools between 1978 and 1980 and dropped out. He found that reading achievement and age on entering high school, not race or gender, were the best predictors of dropping out. Seventy percent of the black students in the sample demonstrated low reading achievement; 31% of Hispanic students were older than their classmates when entering high school because they had been retained in earlier grades. Stoll and his colleagues recommended that school districts develop policies focused on increasing student reading achievement without retention before entering high school (Stewart, 1950).

Psychologists have long recognized that emotional and personality maladjustment occur in conjunction with reading difficulty (Stoll, 1973). Although many mental health professionals have taken the view that social- emotional maladjustment is a primary cause of reading disability (Sylvester & Kurst, 1943), other investigators are of the opinion that the disturbed and deviant behavior of many suffering from reading problems draws directly from the tensions, failures and conflicts associated with the disability (Graham, 1952).

To the extent that reading failure blocks the basic needs of security, success, self esteem and social acceptance, it may be said to cause emotional disturbances (Abrams, 1980). Reading disability causes a disability in almost every area of learning. It is not always easy to establish whether personality maladjustment is the cause, the effect or the concomitant symptom. According to Melia (1986), the relationship between reading disability and emotional and social maladjustment is frequently on-going in nature. Gersten & Keating (1987) suggest that the reading disabled adult has average or above average intelligence, has adequate sensory acuity, and has motor and emotional integrity and is not included under learning problems that result primarily from gross visual, hearing, or motor handicaps, gross neurological damage, mental retardation, emotional disturbance, or lack of opportunity to learn.Various other studies are myriad. They

suggest that poor readers more frequently are male and give evidence of physical, emotional, and social immaturity. They have speech defects, exhibit discipline problems, and come from broken homes, which conditions contribute to their being retarded in language development and lacking in auditory acuity (Gersten & Keating, 1987).

Poor readers are reported to have poor vision, being left-handed or ambidextrous, and coming from a family in which these traits prevail. They are also reported to show evidence of delayed maturation development and dominance, or left-right confusion, which frequently tends to cause reversal problems (Doehring, 1968). They come from low socioeconomic status, where lack of reading materials was significantly present, or from a bilingual background, or from family history of reading disability (Rosenfield, 1980). Poor readers might have been adopted, or born prematurely, or had some complication of pregnancy, often suffering genetic varieties of defects, including prenatal or perinatal complications, postnatal birth trauma or neurological injuries, and they were late in walking (LaBerge & Samuels, 1974).

Poor readers are also reported to show inadequate large muscle and/or fine muscle development. They were often introduced to formal teaching of reading before age 6 or before they were ready,were frequently absent from school, and were forced, through poor teaching, to use too difficult material while learning the fundamentals of reading (Downing, 1973). They reportedly suffered from infections, and often sustained illnesses or injuries during the years critical for the development and maturation of the central nervous system. This causes poor readers to have difficulties in concentrating, to be less self-confident, and to experience problems with spelling (Smith & Johnson, 1976). More recently, studies have suggested that the complexities of the English orthography are a major cause of reading disabilities (Cummins, 1984).

Research on reading as a cognitive task has focused on reading as an active process with three questions of concern: (1) How does the learner learn to identify the printed word? (2) how does he or

she discriminate it from each other word? (3) how does he or she recognize it upon seeing it again in a different context (Heilman, Blair, & Rupley, 1981). The independent reading level, the highest level at which a person can read fluently, requires good comprehension with few word-recognition errors. It is about one year below the instructional level. At the frustration level, according to Becker and Engelman (1981), the reading is full of word recognition and comprehension errors. Betts (1957) considered a person to be reading on frustration level if he reads with less than 75% comprehension and less than 90% accuracy.

Reading cannot occur unless the student can identify and recognize the printed symbol, but perhaps too much emphasis in remedial instruction has been placed on word identification and not enough on comprehension, ability to draw inferences, to separate facts from opinions, to draw conclusions, to predict outcomes, and to interpret words and phrases in context. Another skill that might have been neglected is the ability to predict outcomes, reasoning beyond what is stated, and making calculated guesses and projections based on the reading.

Experiments in the field of reading. Cattell (1886) conducted several experiments in the area of visual perception reaction times. In one of these experiments he investigated the exposure time necessary to perceive colors, pictures, letters and words. He constructed a tachistoscopic device that permitted brief, accurately timed exposures to various sets of stimuli. In reporting the letter and word perception tasks, Cattell found that isolated words and randomly arranged letters were read in about the same amount of time, that not all letters were equally matchable, and that three times as many letters could be identified when they made words than when there was no connection. Twice as many words could be grasped when they were in context as opposed to a random ordering. This evidence has frequently been used to argue for the whole word or 'look-say' approach to reading instruction. However, Cattell's experiment was carried out with persons who could read,

therefore, the generalization of his findings to non-readers is faulty.

Alexander and Money, 1967, and Money, Alexander and Walker (1965) believe that defective direct sense and defective space-form perception as a result of maturational lag, or a developmental defect may explain some causes of reading retardation. Masland (1973) notes that an association must be established between meaning and sound of letters, which are analyzed in the left hemisphere, and the visual pattern of letters, which are analyzed in the right hemisphere. The reading disability condition comes from cerebral immaturity, or a maturational lag, or slowness in certain specialized aspects of neurological development. The potential is there but it has not yet been realized.

Marie Carbo, Director of Research and Staff Development Learning Research Associates, New York, states, (1983) that many non-or-poor readers have debilitating reading problems, that poor readers tend to be tactile and kinesthetic learners, yet they are generally taught with the auditory and visual methods. Poor readers tend to be strongly global learners who need high interest reading materials and holistic instructional approaches. Seldom, however, do materials relate to their interests, and they are taught with tedious exercises designed for analytic students. Such results suggest that many poor readers have been created by our present reading programs which generally ignore individual differences and provide every learner with identical reading instruction and materials. They satisfy the natural styles of some readers, but unfairly discriminate against many others. Reading programs need to be developed that first identify students' interest and reading style strengths.

Word decoding. Decoding ability is held to be vital for early independence in reading. The average reader initially learned to identify words through the abstraction of a variety of word-identification strategies including configuration cues, morphemic cues, phonic cues, spelling cues, picture cues, semantic and

syntactic cues, and the use of the dictionary.

Phonics, carefully taught, has been declared to facilitate reading, making students independent readers so much sooner (Reed, 1957). Phonics is held to be a distinct aid because it promotes simultaneous analysis of the word by hearing it, recognizing it auditorially and by contextual analysis. Phonics instruction has a common goal to teach how to figure out the pronunciation of unfamiliar written words by using the relationship that exists between phonemes and graphemes.

If the adult cannot recognize a word as a whole word, then he or she must organize a set of sub-abilities at the next lowest level, such as phoneme-grapheme correspondences and blending abilities to sound out and then to synthesize the word (Clymer, 1963).

However, in using phonics and finding beginning, medial, and final sounds in a word, reading disabled adults have problems in putting the sounds together to make the word. Some are handicapped because they are not able to discriminate between the various semantic elements of words, do not hear, or do not speak the word correctly, and thus confuse words. No person learns to pronounce distinctions that he or she does not hear. Since phonics does not offer help with meanings, it is productive only with words already known in their spoken form (Durkin 1972).

The disabled reader is probably a disabled reader because he or she is introduced to words at an ever-increasing rate and he or she finds it harder and harder to make the fine discriminations required to identify the words. The problems of visual discrimination do, in fact, increase proportionately as the rate of the introduction of new words increases (Reed, 1985). The basic deficiency is one of inability to relate symbols, to associate the proper phoneme with proper base, or the inability to match a visual sequence with an auditory sequence. The reading disabled has great difficulty in acquiring phonic skills. The mismatching of phoneme and grapheme is at the heart of the problem for many thus disabled (Durkin, 1972). The person has a tendency to guess wildly at

words. He or she pays attention to specific letters and guesses wildly at the rest, mistaking, for example, 'horse' for 'house'. The student has an unusual amount of difficulty with similar-shaped words such as 'bed' and 'fed'. He or she vocalizes excessively while reading silently (Lewis, 1987).

Perception of word meaning goes beyond sensations and requires reacting with meaning. The memory load that is created by having to learn hundreds of new and ever less discriminable words quickly becomes excessive and may sharply contribute to the negative reading attitudes frequently seen among non-or-poor readers. Graham (1982) explains that, as the differences between configurations become ever so fine, with letters curving to the left and right and upward and downward, the disabled reader especially becomes confused, loses confidence, and turns against reading.

Reading theorists such as Spache (1963) hold that most learners look for recognizable portions of the word, such as halves of the compound word, related word, or similar syllable. Spache holds that the student will recognize the word through his auditory vocabulary. Phonics analysis helps in recognition of portions of distinctive features of the word which will lead to recognition. Spache also encourages the teaching of structural analysis and recognition of configuration clues and disregards effects such practice has on the memory trace. He sees reading accomplished by recognition of a minimum of clues such as general word shape and anticipation of the word from the context. The reader, he contends, does not actually perceive individual letters as such when reading. The shape of the first letter or two of the word, the proposed outline of the word given by the top half of the letters and the implication of the word in the sentence is sufficient for word recognition (Estes, 1976). But the reading disabled person tends to be hyperactive, distractive, impulsive, with short attention span, perseverating excessively, and with low frustration tolerance (Orlow, 1974; Hartman, 1974) so recognition of cues may not be possible.

Stanovich et al. (1984) contended that simply to noticerelevant features of a pattern is not sufficient to identify it uniquely. The combination-information of features is the second stage of perceptual order of perceptual learning. It represents learning after acquisition of a new code. Implicit in the use of the term 'combination' is the ordered relations of the items which arise as a merging of a set of features.

The reader extracts meaning from what is read not only on the basis of visual information (the surface structure of the language) but also on the basis of the deep language structure, knowledge and experience recorded within his or her brain. Language and sounds read cannot be comprehended unless the reader makes this critical, active contribution. Cognition organizes all incoming sensory data into a meaningful pattern (Smith & Johnson, 1976).

Piaget's learning theory. Piaget's theory of schemata consists of a framework for tying together the information about any given concept or event, with specifications about the types of interrelations and restrictions upon the way things fit together. Schemata data functions represent concepts stored in memory. They exist as generalized concepts underlying objects, situations, events, sequences of events, and sequences of actions. Essential characteristics of schemata combine to make them powerful representations in knowledge and memory. Schemata can impend one on the other, and represent generic concepts which, taken all together, vary in their levels of and represent knowledge rather than definitions. Knowledge, the active transformation of experiences, arises out of the interaction between stimuli and process. The contribution of the process sorter brings a variety of capacities and strategies to the task of making sense out of the stimuli, objects, and events of the world which impact on consciousness.

Metamemory develops through something analogous to reflective, abstractive processes. In this process a student abstracts and permanently incorporates into cognitive structure general ENTERING

observations on regularities concerning the properties of self's own action and vis-a-vis the environment as contrasted with knowledge about the environment itself devised from visible abstraction (Piaget, 1970). Attention, the activation added to a structure which facilitates processing information to that structure, and attitude, a judgment of a person on an object or concept along an evaluative dimension, enter the process of developing cognition. The person must be able to detect perceptual differences, perceive likenesses and differences, remember word forms, and associate symbols with pictures and objects. Rule development, a procedure applied to a variable, governs the behavior which activates the experiences and helps to take the burden off the memory. Changes in the individual's cognitive structure, such as developing reading ability and mastery, materialize as a function of specific, identifiable events facilitated through rule development.

In the rather complex strategies of information selection and processing, the contents of cognitive style focus on two of these dimensions, global-analytic and reflection-impulsivity. If the information selection and processing operation is interfered with, two basic classes of short term memory problems develop, hysteresis and specificity clouding.

The short term memory, wherein a small amount of information is retained for a short time, is crippled by hysteresis, the inability of short term memory coding mechanisms to keep up with the demands placed on them by too much data being presented at one time. The breakdown in the process of short term memory completion adversely affects long-term memory, wherein materials are retrieved much longer after acquisition. Piaget tells us that long-term memory has three dimensions: (1) episodic or personal memory and semantic memory, or the abstraction of rules from personal memory; (2) conceptual data hierarchy and (3) stratification construct, which includes production, retrieving, and using of these hierarchies, the organizing framework of schemata.

Conclusion. Reading theorists have suggested that non-or-poor readers who are inconsistent and inflexible in reading need direct teaching of more skills, more thorough initial input and more reteaching and review than normal learners, since learning to read is a continuous, cumulative process, and that no reading skill is ever wholly learned at one time, but continues to be refined through successive stages of nurturing. But a constant problem is how to get a slow reader to work on the same words or sound-symbol associations over and over, how to keep interest high while slowing down the pace long enough to achieve mastery of skills?

In the light of this observation, it would seem that more research is needed in the area of the two types of learners identified by Piaget, the global-analytic and the reflective-impulsive. It might be, as Carbo points out, that the needs of the global-analytic reader are being met by present reading techniques while those of the reflective-analytic have yet to be identified.

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